MODIFIED G5RV MULTIBAND DIPOLES

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The G5RV-type antenna is very widely used by many amateurs. It offers multiband operation from a single antenna. This is even more important with the new bands.

A new version was described in *Radio Communication* by ZS6BKW.

The newer breed of transceivers rely on the antenna feeder having a Standing Wave Ratio under 2 to 1. They also are all 50 ohm impedance. To ensure optimum operation the antenna must use 50 ohm feed with an SWR less than 2:1. To be truly multiband this must occur on a multiplicity of bands.

The original G5RV was an attempt at a multiband antenna. The antenna was useful, particularly with transceivers which could match to a range of impedances. Recent transceivers, without variable tuning to match the feeder impedance, need a better match.

The G5RV is shown in Figure 1, and a modified version by W5ANB is shown in Figure 2. The original G5RV is below 2:1 SWR on the bottom of 20 metres and on 12 metres. The W5ANB modification is under 2:1 SWR on the bottom of 40, 17 and the top of 10 metres.

A new version has been described by Brian Austin ZS6BKW, in *Radio Communication,* August 1985. This version comes in two models and offers improved feedline SWR performance.

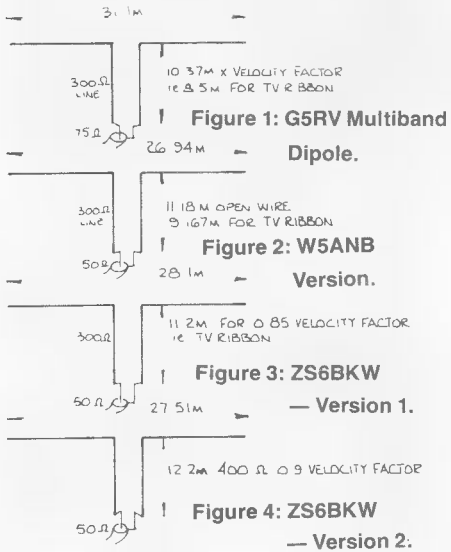

Figure 1: G5RV Multiband Dipole.

Figure 2: W5ANB Version.

Figure 3: ZS6BKW — Version 1.

Figure 4: ZS6BKW — Version 2.

Brian ZL6BKW, arrived at the designs by computer analysis of the lengths and impedances. He was thus able to optimise performance. He then carried out tests at various heights and also, using both straight and inverted Vee configurations.

Two versions of the basic antenna are shown in Figures 3 and 4.

The inverted Vee configuration resulted in a drop in frequency of the lowest SWR. This was from 0.6 percent to two percent.

The frequencies where SWR was less than 2:1 were measured by ZS6BKW:

ANTENNA	FREQUENCIES IN MHz				
G5RV Fig 1		14.000 — 14.180		24.890 — 24.990	
W5ANB Fig 2	7.000 — 7.100		18.068 — 18.168		29.150 — 29.800
ZS6BKW[1] Fig 3	7.000 — 7.100	14.000 — 14.340	18.068 — 18.168	24.890 — 24.910	28.400 — 29.300
ZS6BKW[2] Figure 4	7.000 — 7.100	14.050 — 14.340	18.068 — 18.168	24.890 — 24.990	28.600 — 29.200

Whilst the antenna will operate outside these ranges, an antenna tuning unit will be needed to reduce SWR to below 2:1.

The article in *Radio Communication,* contains extensive plots of SWR. The design approach is also explained in the article.

The G5RV articles in *Radio Communication* or the *RSGB Bulletin* as it was then known, appeared in July 1958 and in November 1966.

The ZS6BKW article, from which this *Try This* is derived, appeared in *Radio Communication* for August 1985.